

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
24 February 2005 (24.02.2005)

PCT

(10) International Publication Number
WO 2005/016121 A2

(51) International Patent Classification⁷:

A61B

(21) International Application Number:

PCT/US2004/025185

(22) International Filing Date: 6 August 2004 (06.08.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/493,354

8 August 2003 (08.08.2003) US

(71) Applicant (for all designated States except US): **VIRGINIA COMMONWEALTH UNIVERSITY [US/US];**
800 East Leigh Street, Suite 113, Richmond, VA 23219 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **LENHARDT, Martin, L. [US/US];** 1608 Mouring Lane, Hayes, VA 23072 (US). **WARD, Kevin [US/US];** 12404 Duncannon Place, Glen Allen, VA 23059 (US).

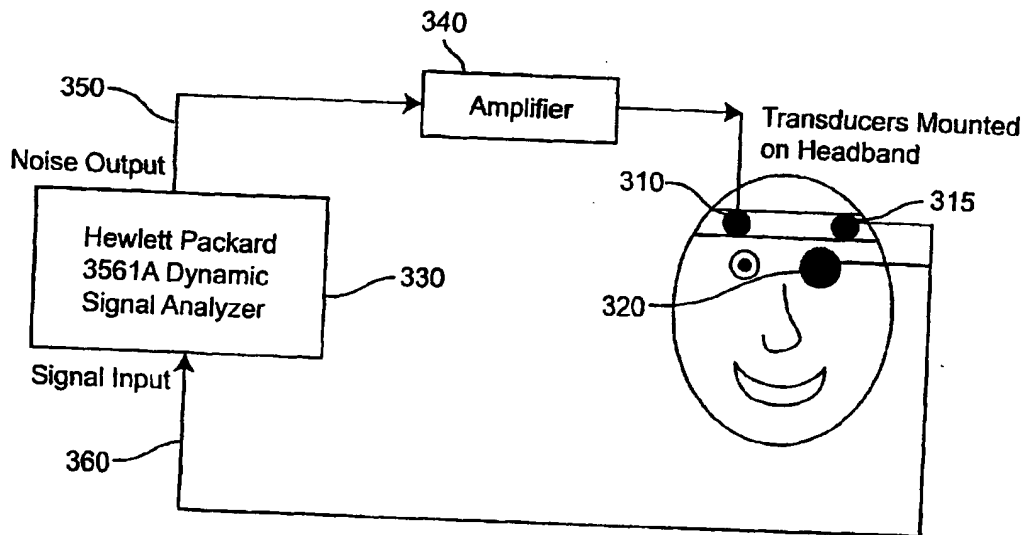
(74) Agents: **WHITHAM, Michael, E. et al.;** Whithman, Curtis & Christofferson, P.C., 11491 Sunset Hills Road, Suite 340, Reston, VA 20190 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR MONITORING INTRA OCULAR AND INTRA CRANIAL PRESSURE



(57) Abstract: A method and apparatus for measuring acoustic energy applied to the head to detect increases in intra cranial pressure. Acoustic eye patches are applied to a patient's eye or eyelid, and an ultrasonic sweep generator applies an acoustic signal across the patient's skull, the signal being swept across a predetermined range. The eye patches have piezoelectric film sensors for measuring the acoustic signal. In one embodiment the predetermined range is in the ultrasonic band and an analyzer determines from the output of the sensors a resonant frequency and a damping of acoustic amplitude at said resonant frequency, there being a correlation between said damping and intra cranial pressure. In another embodiment the predetermined range includes a range less than 20 kHz and the analyzer determines retinal artery pulsations, with pressure being applied to the eye until the pulsations disappear, such pressure being a measure of intra cranial pressure.



Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.